

WHAT IS CLAIMED IS:

1. A maintenance cartridge for a recording apparatus to which an ink cartridge is to be mounted, the maintenance cartridge comprising:

5        a main body mountable to the recording apparatus at least at a same position as a position, at which the ink cartridge is to be mounted to the recording apparatus; and  
            at least one plug element, provided in a region corresponding to an ink supply port of the ink cartridge, for sealing an ink  
10      supply needle that supplies ink to an ink jet recording head.

2. The maintenance cartridge according to claim 1, wherein the plug element comprises:

            a cylindrical portion for guiding the ink supply needle;  
and

15      a taper portion for sealing an ink inlet hole of the ink supply needle.

3. The maintenance cartridge according to claim 2, wherein an inner surface of the taper portion is adapted to closely contact the ink inlet hole.

20      4. The maintenance cartridge according to claim 1, wherein the plug element is normally in a closely adhering state, and expandable by the ink supply needle.

5. The maintenance cartridge according to claim 2, wherein at least one protruded rib portion extending in an insertion  
25      direction of the ink supply needle is formed on an inner surface

of the cylindrical portion.

6. The maintenance cartridge according to claim 1, further comprising:

a memory device storing data concerning maintenance.

7. The maintenance cartridge according to claim 6, wherein the data includes a message that is displayable on a monitor.

8. The maintenance cartridge according to claim 6, wherein the memory device stores data for controlling supply of a negative pressure, which is used for filling ink into the recording head and/or for solving a clogged-up condition of nozzle openings.

9. A maintenance cartridge having an outward form by which a detection system of a recording apparatus can identify the maintenance cartridge.

10. The maintenance cartridge according to claim 1, wherein a plurality of the plug elements are provided correspondingly to an array of the ink supply needles so that the main body and the plurality of the plug elements are provided as a single unit.

11. An ink jet recording apparatus adapted to mount at least two ink cartridges having ink supply ports and memory devices, and at least one maintenance cartridge having an outward form the same or the substantially same as the corresponding ink cartridge, a plug element provided in a region corresponding to the ink supply port of the corresponding ink cartridge, and a memory device, the apparatus comprising:

25 ink supply needles, each being removably attachable to the

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ink supply port and sealable by the plug element;

an ink jet recording head adapted to be supplied with ink from the ink cartridges through the ink supply ports and the ink supply needles;

5 a control system adapted to read data from the memory devices of the ink cartridges and the maintenance cartridge to control a recording operation of the apparatus,

wherein when the control system detects, based on the data read from the memory device of the maintenance cartridge, that  
10 the maintenance cartridge is attached to the recording apparatus, the control system executes a substitute print using ink in the ink cartridge or ink cartridges mounted to the recording apparatus.

12. An ink jet recording apparatus adapted to mount an ink cartridge having at least one ink supply port, the recording apparatus comprising:

at least one ink supply needle corresponding to and removably attachable to the at least one ink supply port;

a recording head adapted to be supplied with ink from the ink cartridge through the at least one ink supply needle and  
20 the at least one ink supply port;

at least one maintenance cartridge mounted to the recording apparatus, and provided with at least one plug element corresponding in location to the at least one ink supply port of the ink cartridge, wherein the at least one plug element  
25 corresponds to and seals the at least one ink supply needle.

13. An ink jet recording apparatus adapted to mount a plurality of ink cartridges having ink supply ports, the recording apparatus comprising:

5 ink supply needles corresponding to and removably attachable to the ink supply ports;

a recording head adapted to be supplied with ink from the ink cartridges through the ink supply needles and the ink supply ports;

10 at least one maintenance cartridge mounted to the recording apparatus, and provided with plug elements corresponding in location to the ink supply port of the ink cartridges, wherein the plug elements corresponds to and seal the ink supply needles.

15 14. The ink jet recording apparatus according to claim 12 or 13, wherein the maintenance cartridge has a memory device that stores information concerning maintenance.

20 15. The ink jet recording apparatus according to claim 14, wherein a recording operation is controlled based on data stored in at least one of memory devices attached to the ink cartridges and data stored in the memory device of the maintenance cartridge.

25 16. The ink jet recording apparatus according to claim 14, wherein the information concerning maintenance includes data for controlling supply of a negative pressure, which is used for filling ink into the recording head and/or for solving a clogged-up condition of nozzle openings.

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17. The ink jet recording apparatus according to any one of claims 11, 12 and 13, wherein a plurality of the plug elements are provided in the single maintenance cartridge correspondingly to array of the ink supply needles.

5        18. The maintenance cartridge according to claim 1, wherein the maintenance cartridge corresponds to and is replaceable with the single ink cartridge.

10      19. The maintenance cartridge according to claim 2, wherein the maintenance cartridge corresponds to and is replaceable with a plurality of the ink cartridges.

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